



Whether you've had enough of Windows or you just fancy giving Linux a go, Jason d'Allison shows you how to try Ubuntu 7.10 on your PC for free

Linux used to be an operating system for the extremely technical; it was a practical option only for those who had the hours and the inclination to learn the nightmarish strings of commands needed to use it. Fortunately, those days are over and Linux has come on in leaps and bounds to the point where mainstream computers, including the popular Asus Eee PC and even some computers from Dell, come with it pre-installed.

There has never been a better time to give the operating system a go. In this easy-to-use, jargon-free guide we'll show you how to install Ubuntu 7.10 on your PC using Microsoft's free Virtual PC 2007 software. This enables you to run Linux in Windows, just as if it were an application, so there's no danger of messing up your computer or losing any important data. If you like what you see, you can follow our How To... guide on page 135 to install Linux for real alongside Windows.

DISTRO INFERNO

One of the big problems with Linux is that there are dozens of different versions (also called distributions, or distros), each of which looks and works slightly differently. For this reason we've decided to use Ubuntu 7.10, which has a reputation for being easy to use. The techniques you learn in this article can be applied to other distributions, though.

There are two ways to install Linux on a PC that already runs Windows, which is what we assume you've got. The most common method is to configure your computer to dual-boot both Windows and Linux. The snag with this arrangement is that you need to change partition information on your hard disk, and if things go wrong, you may find your system completely unbootable.

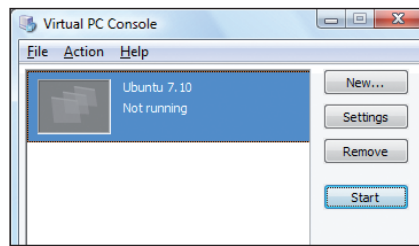
The method we've gone for is to run Microsoft's Virtual PC 2007 in Windows and create a virtual machine to run Linux – see the Virtual Reality box on page 134 for more

information. The beauty of this method is that you don't need to modify your hard disk, and any problems with the Linux installation won't affect your main PC. You can use the same technique to run other operating systems, too, so you could run Windows XP inside Windows Vista to ensure greater compatibility with older programs – just make sure you've got a valid licence first.

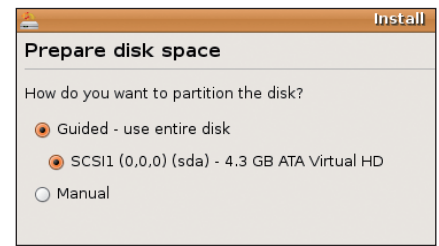
BE PREPARED

First, you need to download the free Ubuntu 7.10 ISO file from <http://tinyurl.com/2cm3o5> (it's also on the cover disc with the DVD edition of *Shopper*). Select the Desktop Edition, not the Server Edition, and click Start download. Select a UK mirror from the drop-down list (the Virgin Media one is usually fast). The file is nearly 700MB, so the download will take a while.

You also need to download the free Virtual PC 2007 from <http://tinyurl.com/3ccjz8>. If you're running 32-bit Windows, as most of you



▲ Use the Virtual PC Console to manage, start and configure your virtual machines



▲ Ubuntu's setup wizard will detect your virtual hard disk automatically

new virtual machine. You can type anything, but it's a good idea to use something meaningful, such as Ubuntu 7.10. Click Next.

Now you need to allocate hard disk space and system RAM. A drop-down list offers presets for every version of Windows, but there's nothing for Linux, so select Other, then Next. Select Adjusting the RAM and a slider will appear, allowing you to specify a value. Bear in mind that whatever RAM you allocate will be unavailable to Windows while the virtual machine is running. If your PC has 2GB of

RAM, give the virtual machine 512MB; if your PC has 1GB, allocate 256MB. If your PC has only 512MB of RAM, you could be in trouble. You could give the virtual machine 128MB RAM, leaving 384MB for Windows. Windows XP can work with this amount, but not Vista, and Ubuntu will be very slow. A better option would be to add more memory. Once you've specified the memory for the virtual machine, click Next.

Select the option for A new virtual hard disk, then click Next. In the Virtual hard disk size box, enter an appropriate size in megabytes. We recommend 4GB (4,096MB), but 3GB (3,072MB) is fine. Once you have done this, click Next and then Finish.

PUTTING THE BOOT IN

You will now see the Virtual PC Console with the name of your new virtual machine in the main window. Click on your new virtual machine and click the Start button. A window will launch that looks like a PC's start-up screen, complete with memory and hard disk tests. If you press Delete you can even enter the virtual machine's BIOS and choose boot preferences.

The virtual machine will look for an operating system, but there isn't one yet. From the top of the console window, select Capture ISO Image from the CD menu. Navigate to the Ubuntu ISO file you've already downloaded, select it and click Open. From the Action menu click Reset, and then click the Reset button from

the dialog box that appears. After a few seconds you'll see the Ubuntu start menu.

At the Ubuntu menu, press the down cursor on your keyboard. This will highlight the option to Start Ubuntu in safe graphics mode. By default, Ubuntu's graphics mode is 24-bit colour, which Virtual PC can't handle. Booting up in this safe mode knocks the graphics down to 16-bit colour. Ubuntu defaults to running at 640x480, which is annoying as the dialog boxes drop off the bottom of the screen, making it impossible to install. To fix this, press F4, select 1,024x768x32 using the cursor keys and press Enter. Finally, press F6 and type i8042.noloop – the mouse won't work otherwise – and press Enter to start Linux. This bug occurs only when running Linux in a virtual machine, not when you install it properly on your PC.

At first, the mouse works only in Windows, and not in the virtual machine. To use it in Ubuntu, simply click anywhere on the Linux desktop. To return mouse control to Windows, press the Alt Gr key (which should be on the right of the space bar). If you ever want to run the virtual machine in full-screen (so that it looks as if Windows isn't even running), press Alt Gr and Enter at the same time. Repeat this to return to Windows.

THE FULL MONTY

At this stage Ubuntu is running in Live mode and hasn't installed anything on your virtual hard disk. Although this enables you to launch applications and run the operating system as if it were installed, every time you reboot you'll have to alter the boot menu settings. Performing an installation fixes this, as the system saves any changes you make.

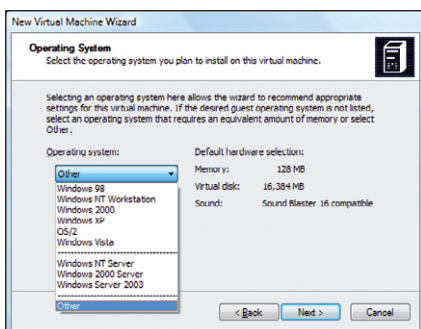
The setup process is painless. Double-click the Install icon on the desktop. The first few steps are self-explanatory and simply require you to select your language, time zone and keyboard layout. When you get to the Prepare disk space dialog box, leave the 'Guided – use entire disk' option selected and click Forward. This automatically configures your virtual hard disk, partitioning it in the way that Linux needs with a dedicated partition for the swap file, which is the same as Windows' page file.

In the final stage of the setup, you need to decide on a username, password and computer name. After that, you'll see a summary of your choices, and then you simply click the Install button. This should take around 20 minutes to complete on most PCs.

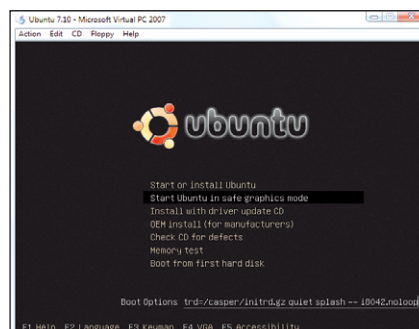
When it's finished, a dialog box will give you the option to restart. Click the option to Continue using Live CD instead. Then click the red on/off button at the top right of the screen and select Shut Down. Select your virtual machine from the main menu and click Settings. Select Networking and change Adapter 1: to the network adaptor that you use to connect to the

will be, download the 32-bit version. If you're running 64-bit Windows, you can choose either the 32-bit or 64-bit version. In either case the file is only about 30MB.

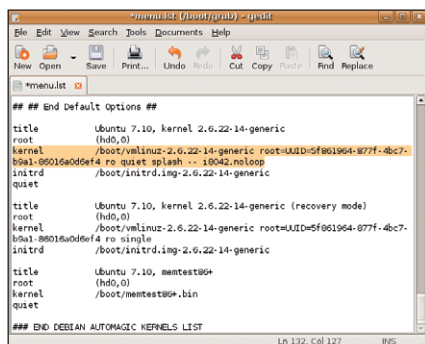
When you have downloaded both files, install Virtual PC and follow the installation wizard. Once it's installed, run Virtual PC from the Start menu and it will automatically start the New Virtual Machine Wizard. On the wizard's title screen, click Next, select Create a virtual machine and click Next. Type a name for your



▲ Virtual PC doesn't have a preset for Linux, so select Other and configure it manually



▲ Without this special boot parameter, you won't be able to use your mouse



▲ Modifying the boot menu in your virtual machine makes your mouse work every time

internet. Click OK to apply the settings and restart your virtual machine.

MOUSE TRAP

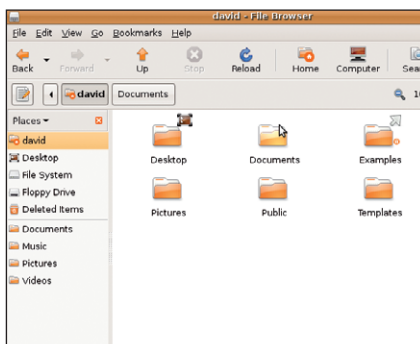
Your mouse won't work in Ubuntu unless you rectify the problem described on the previous page. When the word Grub appears onscreen, Press Escape to display the boot menu. Select the first entry with your cursors keys and press E. Then select the second line and press E again. Type '--i8042.noloop' (without the quote marks) and press Enter. Press B to start Ubuntu.

Log in with the username and password you created when you installed the operating system. Although the mouse works for now, it won't work once you reboot the computer. To fix this we need to change the boot options permanently. Click on the Applications menu and select Terminal from the Accessories menu. Once you've got a command prompt, type 'sudo gedit /boot/grub/menu.lst' (without the quotes). Enter your login password again.

In the notepad-style application that appears, find the first line that starts: kernel/boot/vmlinuz-2.6.22-14-generic. At the end of this line, add '--i8042.noloop' (again, leaving out the quotes).

Before you reboot, you need to set up the sound and networking. To get the sound working properly, go back to the Terminal window and type 'sudo gedit /etc/modules'. In the window that appears, add a new line at the bottom and type 'snd-sb16' (without the quotes). Click Save.

To set up networking, click the System menu and select Network from the Administration menu. Select Wired connection (it will be called this even if you use wireless, due to the way that the virtual machine works) and click Properties. Remove the tick from the Enable roaming mode box and select Automatic



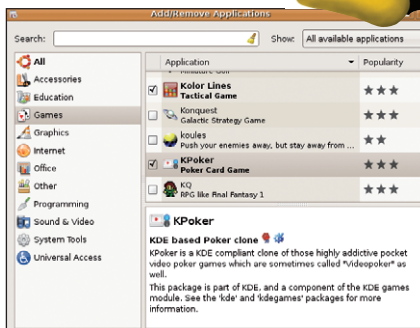
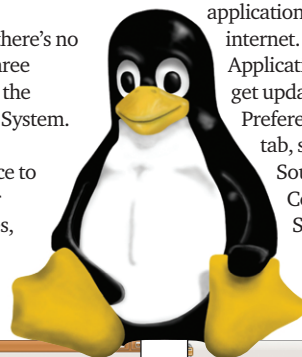
▲ The Ubuntu File Browser works in a similar way to Windows Explorer

configuration (DHCP) in the Configuration box. Click OK and then Close. Shut down the PC using the power button at the top right. Start it again and you should find that your mouse now works correctly and you have sound.

GETTING AROUND

With everything working properly, you can start to use Ubuntu as a real operating system. The first thing to note is that it works in a very similar way to Windows. For example, all of Ubuntu's windows and applications have the same three controls for minimising, maximising and closing, and common Windows shortcuts, such as Ctrl-C for copying, work.

The main difference is that there's no Start menu. Instead, you have three menus running across the top of the screen: Applications, Places and System. The Places menu is a bit like My Computer, and is the easiest place to start. Here you'll find options for Computer and several directories, including the Windows-like Documents, Music, Videos



▲ Programs are downloaded automatically, making Ubuntu even easier to use than Windows

and Pictures. Selecting any of these opens an Explorer-style file viewer called File Browser.

Double-clicking a file or folder opens it, right-clicking lets you change a file's properties or create a new folder or file, and clicking Up takes you to the previous directory. You can drag and drop files just as you would in Windows, and everything is very similar. The only slight difference is that there's a dedicated Home button that takes you back to your own personal set of directories. Have a look around the hard disk and you'll find that Linux isn't so different to Windows after all.

GET MORE APPLICATIONS

The Applications menu provides access to all your installed applications. If you click on this and select Office, you'll see that OpenOffice has already been installed. Select OpenOffice.org Word Processor and you can write documents. This application looks, feels and works in much the same way as Microsoft Word, right down to shortcut keys. You save files in the same way, and the default option is to save files in your Documents folder. You can use the Explorer-style file browser to change the save directory, as you can in Windows, and can even create new folders by clicking Create Folder.

Adding new applications is easy, too. Ubuntu automatically creates a list of applications that you can download from the internet. Select Add/Remove... from the Applications menu. At first, this tool won't get updates from the internet, so select Preferences. From the Ubuntu Software tab, select Canonical supported Open Source software (main) and Community maintained Open Source software (universe). Click on the Third Party Software tab and select everything. Then select all



▲ With automatic software updates, Ubuntu rivals Windows for simplicity and ease of use

Virtual reality Running Virtual PC under Windows

Running a virtual machine involves a host and a guest. The host is a real, physical computer (in our case, a PC running Windows); the guest is a virtual, software PC. In effect, the guest's operating system (Ubuntu, in our case) runs inside the host's, just like an application. As a result, you can start and stop the guest on the fly without having to reboot the host, and if the guest crashes, it doesn't affect the host.

Several free virtual machine applications are available, but we decided to use Microsoft's Virtual PC 2007. This emulates a Pentium III processor, S3 Trio64 graphics card and Sound Blaster 16 sound card, among other hardware. It makes no difference if the host has a Core 2 Quad processor, Radeon HD 3870 graphics and X-Fi Elite Pro sound, as they are completely invisible to the guest. That's one reason why guests are not suited to such tasks as gaming.

Officially, Virtual PC supports the following host operating systems:

- Windows XP Professional (32-bit and 64-bit)
- Windows XP Tablet PC Edition
- Windows Vista Business (32-bit and 64-bit)
- Windows Vista Enterprise (32-bit and 64-bit)
- Windows Vista Ultimate (32-bit and 64-bit)
- Windows Server 2003 Standard Edition (32-bit and 64-bit)

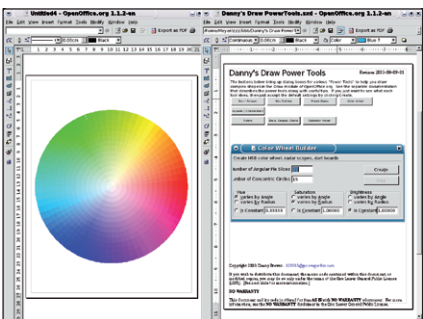
If you're hoping to use XP Home Edition, Vista Home Premium or Vista Home Basic, don't worry. During the Virtual PC setup, you'll receive the message, "You are not running on a supported operating system". Just click OK and, bizarrely but thankfully, the installation will continue.

the Ubuntu updates under the Updates tab. Click Close and select Reload. Close the Add/Remove Applications program and start it again. You can browse applications through the main list, select categories or type in keywords. When you find an application you like the look of, put a tick in its box and click Apply changes. The application is downloaded from the internet and installed automatically. Removing an application is just as easy: check the list to find the one you want to delete, remove its tick and click Apply changes. There's a huge range of applications to pick from, and the simple install is even easier than in Windows.

Once Add/Remove Applications is working, you'll start getting automatic updates. A pop-up window should tell you when updates are ready; otherwise you'll need to click the orange icon at the top-right of the screen. The Update Manager will pop up and you can simply click Install Updates to get your system up to date.

CHANGING THE LOOK AND FEEL

While Windows puts all its configuration options inside its Control Panel, Ubuntu uses the System menu. This gives you quick access to the applications that control your hardware and determine the look and feel of the system. We used the Network option at the start of this article to set up our network, but have a look at the other options available to get a feel for how the system works.



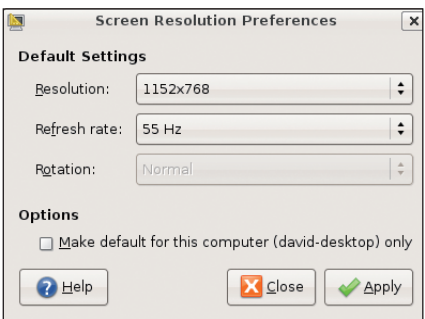
Familiar applications such as OpenOffice work in the same way as in Windows

One thing that can confuse Windows users is that Ubuntu generally has a different utility for each option, rather than using the Windows approach of grouping lots of related options in a single utility. For example, the Displays properties dialog box in Windows lets you select resolution, look and feel; Ubuntu has different utilities for each, such as Screen Resolution to change the desktop's resolution.

Again, looking through the options will help you understand how the system works, but the more you use it, the easier it gets.

THE NEXT STEP

As you become more familiar with Ubuntu, you'll probably find that you want to do more. The Ubuntu forums at <http://tinyurl.com/qxt4o>



Dedicated utilities let you control the look and feel, such as this one for setting screen resolution

are a good starting point, and you'll find that there are lots of people ready and willing to help you if you post a question. Check the documentation first, though.

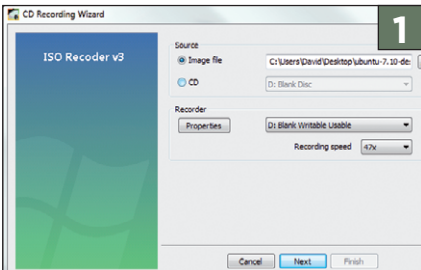
Running Linux in a Virtual PC is a good introduction, but you won't be able to use USB hardware and it'll never run quite as quickly as if you installed it directly on your PC. If you find that you really like Ubuntu and want to use it more seriously, follow our How To... below for full instructions on setting up a dual-boot system with Windows. Once you're done you can choose to boot into Windows or Linux every time you start your PC. We're sure that the more you use Linux, the easier and more rewarding you'll find it. You may even get to the point where you don't need Windows any more. **CS**

HOW TO... Dual-boot Ubuntu with Windows

Virtualisation is marvellous, but a significant snag is that the guest operating system can't use your host PC's 'real' hardware. A full installation of Ubuntu is essential if you want to take the next step. This is particularly necessary if you want to use USB hardware, such as flash drives and printers, or you want to use your graphics card's full abilities, such as for playing games. While the choice of games isn't as wide as it is for Windows, the range of titles is growing and includes Quake and Doom.

Here we'll show you how to dual-boot Windows and Ubuntu. All you need to do is make sure you've got at least 3GB of free space on your hard disk.

1 First, you need to burn the Ubuntu ISO file to a blank CD. Burn it as an image file, as this makes the CD bootable and extracts all the files from the ISO archive. Nero and Roxio both have options for burning images (check the manual), but you can also do it by downloading the free ISO Recorder from <http://isorecorder.com>.

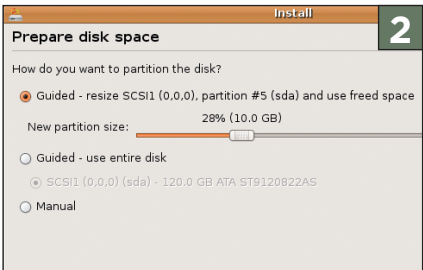


[alexfeinman.com](http://isorecorder.com). Make sure you get the right version for your PC's operating system.

Locate the Ubuntu image file on your PC in Explorer and right-click it. Depending on what you see, you must either select Copy image to CD or Open With, ISO Recorder. Select your CD recorder from the list and click Next.

2 Put your completed CD in your PC's optical drive and restart it. Make sure the optical drive is set as the first boot device in your BIOS. This time, select the first menu option – there's no need to select a low-colour mode or fudge the mouse into working, as the installation will just work properly.

At the desktop, double-click the Install icon. Follow the installation as before, but when you come to the hard disk stage, select Guided – resize. Use the slider to select how much of your hard disk's free space you want to use for Linux. Ubuntu will automatically resize your existing disk partitions and use the free space for new Linux partitions. After the installation,



remove the CD and reboot your PC. Your boot menu will now give you the option of running Windows or Ubuntu.

3 Now that you've got a 'real' installation of Ubuntu, you can see the difference. Testing the OpenGL graphics capability is a good way to check that your 3D hardware is working. Try the pre-installed chess game under the Applications menu. Click its View menu and select 3D. If you get an error message, open Synaptic Package Manager – under Administration in the System menu – and find, download and install Python-opengl and Python-gtkglext1. If you have an ATI graphics card, you may also need to open the Restricted Drivers Manager (again, under Administration) and enable the listed driver.

Next, try Compiz – Ubuntu's forums at <http://tinyurl.com/qxt4o> will show you how. Compiz will give your desktop more fancy 3D effects than Vista can ever dream of, including the amazing Cube interface. You should be able to connect USB hardware now, too.

